News Release
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Novel research directions, sustainable research funding, expanded educational focus necessary to advance radiation oncology research

ASTRO Cancer Biology/Radiation Biology Task Force report recommends several high-value research projects in cancer biology and radiation biology

Fairfax, Va., November 18, 2013 – The American Society for Radiation Oncology (ASTRO) has released a new report, “Current Status and Recommendations for the Future of Research, Teaching and Testing in the Biological Sciences of Radiation Oncology: Report of the American Society for Radiation Oncology Cancer Biology/Radiation Biology Task Force,” that recommends critical areas of biological basic research that would most advance the clinical benefits of radiation oncology, emphasizes the need for additional focus on selected areas of basic science investigation and continued, sustainable funding for radiation oncology biology research and encourages the expansion of post-graduate education and testing, according to an executive summary published as an article in press online in the International Journal of Radiation Oncology • Biology • Physics (Red Journal), ASTRO’s official scientific journal. The executive summary will be published in the January 2014 print edition of the Red Journal. The full report is available online on the ASTRO website (www.astro.org/biology).

The report includes 13 recommendations related to research funding, critical topics of investigation in biological basic research, and education and testing. The recommendations are based on a two-year project that included an extensive survey of more than 400 Radiation Research Society members and approximately 1,200 ASTRO members who identified an interest in biology with MD, MD/PhD or PhD credentials. A total of 1,690 surveys were distributed, and 465 responses were received (28 percent response rate). Of those received, 395 (25 percent) were deemed valid and
evaluable. Of those evaluable responses, 26 percent (98) were radiation oncologists and 24 percent (94) were cancer biology/radiation biology researchers. The remaining respondents were cancer biology/radiation biology instructors, cancer biology/radiation biology researchers and radiation oncology residents. More than half (58 percent) of respondents have PhD credentials. In addition to the survey, 19 telephone interviews were conducted with basic research and cancer care thought leaders identified by Task Force members and survey respondents as knowledgeable in trends within basic oncology research and funding. Task Force members and ASTRO staff also conducted an extensive literature review, reviews of previous Association of Residents in Radiation Oncology member surveys, a review of American Board of Radiology study guides for initial certification and a review of publicly available data from the National Institutes of Health (NIH) and National Cancer Institute (NCI) grant award databases.

The report recommends a number of high-value, high-quality projects in cancer biology and radiation biology and more coordinated and focused federal research funding efforts to support that research. This recommendation is based on research funding data from a 2012 NIH report to Congress. In that report, the NIH stated that less than 1 percent of the total NIH budget in Fiscal Years 2010 and 2011 went to radiation oncology research and slightly more than 4 percent of NCI’s budget supported radiation oncology-specific projects during that same time period, despite the fact that more than half of all cancer patients receive radiation treatments as part of their disease management.

Additionally, the Task Force report suggests an improved methodology for investigators to self-designate research activities as “radiation research-related” to improve the ability to track funding for this type of research. The report recommends a revision to the current radiation biology grant evaluation system to include reviewers with significant expertise in cancer biology and radiation biology topics to ensure funding is adequately distributed to these research projects.

Based on survey and interview data, the report identifies 10 critical areas of investigation that should be actively pursued during the next decade by radiation-focused basic science researchers. The 10 topics (in no order of priority) are: 1) clinical translation and biomarkers; 2) signaling
pathways of normal and malignant tissue; 3) tumor microenvironment and hypoxia; 4) radiation sensitizers and protectors; 5) genomics and epigenetics in radiation oncology; 6) DNA repair in normal and malignant tissues; 7) tumor metabolism; 8) molecular imaging and nanotechnology; 9) stem cell biology; and 10) immunology and inflammation. The report states that these 10 topics, which are explained in detail in the full report, demonstrate the greatest potential to have a positive impact on the ability to improve patient care.

Several report recommendations focus on the need to expand post-graduate education and testing in emerging areas of basic science research as a way to encourage trainees to pursue academic, research-oriented careers with a radiation oncology focus. The report suggests a strengthening of the basic cancer biology/radiation biology curricula in post-graduate training programs to encourage residents to pursue research projects and careers in the areas identified in the report. It also recommends that additional protected time for mentoring should be allowed to help provide investigators-in-training with the skills necessary to become independent investigators who can successfully establish laboratories and receive research funding.

“Dedication to basic science research efforts, particularly in the areas identified in the report, is vital to the continued advancement of the field,” said Paul E. Wallner, DO, FASTRO, chair of the Cancer Biology/Radiation Biology Task Force, senior vice president for medical affairs at 21st Century Oncology and associate executive director for radiation oncology at the American Board of Radiology. “In order to meet this need, it is critical to provide sustainable funding for radiation oncology-related research to support the investigators that have the expertise to do this research.”

The Cancer Biology/Radiation Biology Task Force was empanelled by ASTRO’s Board of Directors in August 2011 to examine the current state and future direction of basic, pre-clinical research within radiation oncology. The Task Force consisted of 19 members, including senior clinicians, clinical investigators, basic research scientists, and early and mid-career basic and translational science investigators, three consultants and two non-Task Force section contributors.

“One of the key aspects of ASTRO’s strategic plan is to advance science through research to improve clinical outcomes for patients by providing opportunities for basic, translational and clinical
research scientists,” said Colleen A.F. Lawton, MD, FASTRO, chair of ASTRO’s Board of Directors. “As the Task Force’s report shows, it is crucial to expand the support of this research and to foster the development of trainees interested in research as they enter our field. ASTRO will collaborate with our medical specialty society colleagues to ensure these recommendations are considered in future educational efforts and policy initiatives, ultimately helping us to improve cancer care for patients worldwide.”

The final Task Force report was approved by ASTRO’s Board of Directors on August 13, 2013.

ABOUT ASTRO

ASTRO is the premier radiation oncology society in the world, with more than 10,000 members who are physicians, nurses, biologist, physicists, radiation therapists, dosimetrists and other health care professionals that specialize in treating patients with radiation therapies. As the leading organization in radiation oncology, the Society is dedicated to improving patient care through professional education and training, support for clinical practice and health policy standards, advancement of science and research, and advocacy. ASTRO publishes two medical journals, International Journal of Radiation Oncology • Biology • Physics (www.redjournal.org) and Practical Radiation Oncology (www.practiceralradonc.org); developed and maintains an extensive patient website, www.rtanswers.org; and created the Radiation Oncology Institute (www.roinstitute.org), a non-profit foundation to support research and education efforts around the world that enhance and confirm the critical role of radiation therapy in improving cancer treatment. To learn more about ASTRO, visit www.astro.org.

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